Journal of Business Research 175 (2024) 114541

Contents lists available at ScienceDirect

Journal of Business Research

journal homepage: www.elsevier.com/locate/jbusres

Playing with emotions: Text analysis of emotional tones in gender-casted Children's media

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ARTICLE INFO

Keywords:
Children
Media
Gender
Emotions
Text analysis
LIWC

ABSTRACT

This research examines the differences in emotional tones and drives in gender-casted (*e.g.* boy-directed vs. girl-directed) children's media and how this has changed over time. This topic is important given that children spend copious amounts of time watching media. Two studies utilizing Linguistic Inquiry and Word Count (LIWC) text analysis on a diverse body of over 1000 h of media transcripts from 78 franchises demonstrate that girl-directed children's media has a more positive emotional tone overall than boy-directed media, but that this difference is narrowing over time. Additionally, boy-directed media features a greater prevalence of words expressing the emotion of anger and the drives of power and risk. In contrast, girl-directed media features a greater prevalence of words expressing the emotion of sadness and the drive of affiliation. The results proffer insights into how emotional tones and drives represented in children's media may impact young consumers' understanding of gender.

1. Introduction

Businesses have long used gender as a means to position and promote products and services including television shows, toys, cars, and diets (Borau & Bonnefon, 2020; Fine & Rush, 2018). The (re)emergence of feminist discourses in the last decade have forced business organizations to revise their gendered messaging in media and advertising (Thompson-Whiteside & Turnbull, 2021). Specifically, businesses have been more mindful to the emotional tones and words presented in their gender-casted (*e.g.*, boy-directed, girl-directed) media, especially those directed towards children (Becker et al., 2016; Campbell et al., 2016). Moreover, mediated gender representations are doubly reinforced when they spillover into the language used in toy packaging (Owen & Padron, 2015).

Mediated gender representations can elicit different emotional tones. An emotional tone describes the valence attached to words and images, whether they are positive, ambivalent, or negative (Pennebaker et al., 2015a). For instance, Gillette's "The Best a Man Can Be" campaign, which displays instances of toxic masculinity, has a distinct negative emotional tone with displays of harassment, anger, and sadness. In contrast, Nike's "Dream Crazier" campaign has a positive emotional tone, with an appeal that encourages women to pursue their wildest aspirations. Broadly, media reinforces stereotypical gender themes and emotional tones, where female-directed media present comparatively positive, emotional tones and male-directed media elicit more negative, violent tones (Campbell et al., 2016; Owen & Padron, 2015; Rajecki et al., 1993).

Whilst scholarship has focused on adult media, an examination of gender discourses in children's media is equally important given that children spend copious amounts of time watching media, which influence their understandings of gender (Giroux, 1999; Keys, 2016; Rajecki et al., 1993). The concern is that people's (especially children's) consumption of media causes them to reproduce these stereotypes in real life. By studying the language and emotional tones used in gender-casted children's cartoons, businesses can identify unique characteristics, themes, or narratives that resonate with specific genders. This knowledge can inform market segmentation strategies, allowing companies to develop tailored products and services that cater to the specific needs and interests of different gender segments.

Our research examines the emotional tones of children's media through text analysis of their scripts. The inquiry rests on the theory that words can be gender-coded (Mecit et al., 2022) and that gendered, emotional tones can be communicated through the body of language presented in media (Ghilzai et al., 2017; Griffin et al., 2017; Owen & Padron, 2015). Our first study, which involves text analysis of 2333 scripts from 78 popular children's media franchises, extends gendered

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https://doi.org/10.1016/j.jbusres.2024.114541
Received 1 March 2023; Received in revised form 20 January 2024; Accepted 25 January 2024
Available online 7 February 2024
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studies that have examined children's media at the story or character levels (Keys, 2016; Perea, 2015; Schiele et al., 2020). Our second study expands on the first by examining how overall emotional tone in gender-casted children's media changes over time. Specifically, these studies illuminate the research questions:

1. What emotional tones are conveyed through the words in children's media?
2. How do emotional tones differ in gender-casted children's media?
3. Have emotional tones in gender-casted children's media changed over time?

Through an extensive Linguistic Inquiry and Word Count (LIWC) text analysis of 2333 scripts from 78 popular toy and media franchises in Study 1, we find that the emotional tones of words used in gender-casted children's media follow distinct patterns. Overall, Study 1 indicates that girl-directed children's media have a more positive emotional tone overall than boy-directed media. The study also produces nuanced findings. Girl-directed media contain more words associated with an affiliation drive, and a greater prevalence of words expressing sadness. In contrast, boy-directed media contain more words associated with power and risk drives, and features a greater prevalence of words expressing anger. Moreover, our longitudinal Study 2 indicates that gender-casted children's media is moving towards convergence in overall emotional tone. While the overall emotional tone of recent girl-directed media is still more positive than boy-directed media, that difference has narrowed compared to older iterations of shows from those same franchises.

The results contribute to the literature in several ways. First, Study 1 empirically demonstrates that gender-casted children's media contain stereotypical, gendered word associations that are only alluded to in content and qualitative studies (England et al., 2011; Schiele et al., 2020). Study 1′s text analysis of a robust, varied dataset provides the scientific backing for these associations. Second, the findings indicate that boy-directed and girls-directed children's media have differential emotional tones, and Study 2 shows that these overall tones have changed over time. Overall, the findings proffer significant business implications relevant to segmentation strategies, media design, and product design.

The rest of the manuscript has the following structure. First, we review the children's media, gender, and emotional tones literatures to provide the conceptual background for the hypotheses of the study. Next, we provide the methodological procedures for the text analyses. Subsequently, we present the results from the text analyses. Then, we elaborate on the theoretical contributions and business implications of the results. Finally, the article ends with directions for future research.

2. Conceptual background

2.1. Gender: nature vs. nurture

Psychological studies suggest that people's gender identity is likely a result of *both* nature and nurture (Eagly & Wood, 2013, 2017). Yet, the "nature" versus "nurture" debate persists in both popular and academic media as if both were mutually exclusive. The nature argument suggests that gender is tied to biological sex. Specifically, chromosomes affect the development of anatomy, which subsequently impacts hormonal development. Thus, at a very young age (around 18 months), children learn that there are two sexes, and they identify with one or the other (Baldwin & Moses, 1996). Moreover, early hormonal development in children may impact their temperament (Kiff et al., 2011). These traits manifest themselves in play activities and toy preferences, where boys are predisposed to action-oriented play, and girls are predisposed to more nurturing play (Hines, 2012).

On the other hand, the nurture argument that biological sex and gender are independent dimensions. In other words, a person's sex is what they are assigned at birth, but their gender identity is a result of socialization and culture. It is the identity that one feels that they are, irrespective of anatomy, and that identity manifests itself through one's body practices and consumption choices (*e.g.,* choice of clothes) (Butler, 2002). This idea implies that what are deemed "masculine" or "feminine" practices are not natural, but a result of a socialized body. This article extends the nurture discourse—how mediated representations, like cartoons, influence children's conception of gender.

2.2. Children, media & gender

Children develop stereotypical understandings of gender at a relatively early age– as early as 18 months old— but start to acknowledge the social influences of gender by age 10 (Taylor, 1996). Scholars pinpoint media (*e.g.,* advertising, television programming and movies) as a key influence of children's understanding of gender concepts (Bussey & Bandura, 1999, 2004; Giroux, 1999; Witt, 2000). Studies that examine the intersection of children, media and gender are often informed by social learning theory, which posits that people's understanding of gender is learnt via direct observation or vicarious absorption of environmental influences (Bandura, 1971). Specifically, media provides the schema that people use to process and organize gender associations (Bem, 1983).

Children's media reinforce gender stereotypes, even when they claim to be progressive (Becker et al., 2016). Male characters often exude the tropes of hegemonic masculinity, such as aggression, physical power, and competitiveness (Harriger et al., 2021). Meanwhile, female characters are depicted as affectionate and emotional (England et al., 2011), and often perform domestic tasks (Ghilzai et al., 2017; Magotra and Kaur, 2018). Moreover, these stereotypes are often "gender-casted," meaning that they are directed to girls in girl-directed media and boys in boy-directed media (Rajecki et al., 1993).

Gender stereotypes are reinforced when young audiences watch media repeatedly (Lin, 2001). Internet streaming and DVD technologies allow gender concepts, even outdated ones, to circulate amongst modern youth (Griffin et al., 2017). Consequently, scholars have paid special attention to violent male characters in boys' media and how they might normalize aggressive behavior in male children (Ainslie, 1989; Sanson & Muccio, 1993; Mahmood et al., 2020), and how mediated representations of passive, domesticated female characters might lead young girls to accept patriarchal subjectivity in real life and stymy their ambitions (Coyne et al., 2016).

Specifically, words in media can influence children's understandings of gender. For example, early Disney animated films incorporated managerialist language that reflected patriarchal power and the subjugated role of women of the mid-20th century, but more recent films have utilized words that reflect female empowerment and drive (Griffin et al., 2017). Some languages (*e.g.*, French, Spanish) have masculine or feminine words, and grammatical gendering could affect people's perceptions (Gentner & Goldin-Meadow, 2003). For instance, diseases that are marked with a feminine (vs. masculine) grammatical gender are perceived by people as less dangerous, and these connotations carry broader social implications (Mecit et al., 2022).

The gendering of words (and language) is important because children often imitate the words used by cartoon characters, and often fantasize being these characters in their lives (Ghilzai et al., 2017). Especially, girls are more prone than boys to identify with same-gender characters (Coyne et al., 2016). Thus, the perpetuation of gender stereotypes may be magnified by gender-casted children's media, where boys are exposed to hegemonic masculinized representations and language in boy-directed media, and where girls observe cliched feminized portrayals and language.

2.3. Emotional tones

Language elicits different emotional tones, which are the valence

that is communicated by words and their groupings. For instance, "happy," "good," or "trust" are words that have a positive valence, while "hate," "afraid," and "grief" have negative connotations (Settanni & Marengo, 2015). When aggregated into a body of text, these words can convey an overall positive or negative tone (Pennebaker et al., 2015a). In turn, emotional tones in language can communicate gendered meanings (Hu & Kearney, 2021; Sun et al., 2020).

Within the literature, there is an opportunity for scholars to empirically validate the associations between language and gender, and specifically, to examine the emotional tones in language. Existing studies that examine words and gender in children's media are drawn from word count analyses (England et al., 2011), or thematic analyses of storylines as opposed to words (Schiele et al., 2020). These studies allude to associations between words and gender, but stop short of scientifically verifying these associations. Moreover, limited work has investigated the emotional tones of language in the children's media domain. This study examines this opportunity by empirically examining the relationship between words, emotional tones, and gender in children's media.

In children's media, emotional tones are associated with gender. Girl-directed media often contain language that convey positive emotional tones (Owen & Padron, 2015; Rajecki et al., 1993). Protagonists in girl-directed media often use words like "trust" and "affection," which are positively valanced and deemed feminine (England et al., 2011). For instance, Disney princesses often accentuate the positive (Griffin et al., 2017) and encourage pro-social behaviors (Coyne et al., 2016). Essentially, children's media reflects social media studies, which demonstrate that women are more likely than men to use words that convey positive emotions (Park & Woo, 2019; Sun et al., 2020; Thelwall et al., 2010). Thus,

H_1: Girl-directed (vs. boy-directed) media will contain more words that convey a positive emotional tone.

In contrast, boy-directed media should contain more language that expresses negative emotions **(**Rajecki et al., 1993**),** with characters speaking aggressive words like "kill," "power," and "angry" (Ainslie, 1988; Owen & Padron, 2015). Overall, boy-directed media is replete with themes of anger, violence, and fear (Harriger et al., 2021). Consequently,

H_2: Boy-directed (vs. girl-directed) media will contain more words that express anger.

However, one negative emotion that is more socially acceptable for women to express than for men is sadness. Women are more prone to express negative emotions associated with vulnerability (Brody & Hall, 2008), and tend to use affective words that express emotional thinking (Hu & Kearney, 2021). In children's media, female characters often show emotions and are depicted "collapsing to crying" (England et al., 2011, p. 560; also see Perea, 2015). Even in the superhero genre, superheroines are portrayed as more emotional than their male counterparts (Coyne et al., 2014). On the other hand, men find it difficult to express their depression and sadness, especially crying, as it is perceived as atypical or weak (Branney & White, 2008; McQueen, 2017; Motro & Ellis, 2017), and this is often reflected in children's media (Baker & Raney, 2007). As a result,

H_3: Girl-directed (vs. boy-directed) media will contain more words that express sadness.

The marketing of children's toys and supporting media has traditionally been segmented by gender. However, there has been public backlash against the gendered marketing of children's toys in recent years (Fine & Rush, 2018). Retailers, such as Target, have responded by eliminating gendered color coding of toy aisles and manufacturers, such as LEGO, have looked to find ways to appeal to girls as well as boys. The criticism against toys and supporting media targeting girls has centered around stereotypical depictions of "damsels in distress" or heavily domestic female roles. In contrast, the criticism of toys and supporting media targeting boys has largely focused on the amount of violence associated with the toys and depicted in the supporting media. In response, toy and media companies are adjusting their product offerings so that there are more action oriented elements in girl-targeted franchises like My Little Pony and Disney Princesses (Hine et al., 2018) while toning down the violence in boy-targeted franchises such as Teenage Mutant Ninja Turtles and Transformers (Ashby, 2012). The increased focus on action in girl-targeted franchises should result in a less positive emotional tone while a decrease in violence in boy-targeted franchises should result in a more positive emotional tone over time. Thus we anticipate that,

H_4: The overall emotional tone of gender-casted children's media will move towards convergence over time.

2.4. Drives

A language dimension that captures people's motivations is "drives" (Pennebaker et al., 2015a). Multiple drives are captured in LIWC, including affiliation, power, reward focus and risk focus. In children's media, different drives may be present in gender-casted media. For example, girl-directed (vs. boy-directed) media may exhibit more affiliation. Animated female characters often engage in "verbal celebrations of friendship" and physical interaction (Becker et al., 2016). These cartoons reflect gendered behavior in real life, where women are more prone to horizontal collectivism (*e.g.,* valuing equality) than men who are disposed to hierarchy (Tehrani & Yamini, 2022; Zeffane, 2017). Additionally, women's (vs. men's) posts on social media exhibit a stronger sense of group awareness, cohesion, and friendship (Hu & Kearney, 2021). Thus,

H_5: Girl-directed (vs. boy-directed) media will contain more words that convey an affiliation drive.

In contrast, boy-directed (vs. girl-directed) media may contain more drive-words such as "power" and "risk." Power words reference status, dominance, and hierarchies (Pennebaker et al., 2015a). Boy-directed media have characters who often declare their (masculine) power, literally yelling "I have the power!" (Ainslie, 1988; Varney, 2002). In cartoons, men are often portrayed as physically imposing figures who speak with authority, especially to women (England et al., 2011; Macaluso, 2018; Magotra & Kaur, 2018). These media reflect real life, where men are more likely than women to exhibit vertical individualism (*e.g.,* emphasizing hierarchy) (Tehrani & Yamini, 2022).

H_6: Boy-directed (vs. girl-directed) media will contain more words that convey a power drive.

Finally, risk words reference dangers, concerns, and things to avoid (Pennebaker et al., 2015a). Risk taking has been associated with hegemonic masculinity (Barrett, 1996; Gilbert et al., 2018; Meier-Pesti & Penz, 2008). In boy-directed media, the male hero's journey often involves forays into new worlds, dangerous adventures, and violent encounters with foes (Harriger et al., 2021). Thus,

H_7: Boy-directed (vs. girl-directed) media will contain more words that convey a risk-focused drive.

Based on the literature, our study proposes that distinct emotional tones are presented in gender-casted children's media. Our study will employ a text analysis to test the hypotheses, and the results contribute to past scholarship, which have examined gender effects at the story or character levels (Becker et al., 2016; England et al., 2011; Schiele et al., 2020).

3. Pre-test: Franchise familiarity and target gender

The goal of the pre-test was to establish the extent to which movies

and television/ streaming programs are perceived to have gender specific targeting. In the pre-test, we survey parents about popular toy and media franchises. We focused on franchises that include both children's media and popular children's toy lines because toy manufacturers typically segment the market for toys according to gender (Hasbro, 2017; Mattel, 2017). Parents are often purchasers of toys intended for children, so their perceptions of the target gender of toys is pertinent. Parents were asked about their familiarity with and perceptions of the target gender for toys based on characters from each franchise.

3.1. Method

3.1.1. Franchise selection

A list of franchises was generated based on toy manufacturer annual reports, physical retail stores, retailer websites, and media available streaming services. Franchises were included in the pre-test if both children's media and children's toy lines were linked to the franchise. Ultimately, 85 franchises were included in the survey. Please see the Appendix for a list of all franchises included in the pre-test organized by category.

3.1.2. Participants

A total of 256 participants (50 % female with a balanced quota design) were recruited using the Prolific platform and compensated for their time. Participation was limited to Prolific users located in the United States that stated that they were parents in their profile. Eight participants were dropped because their stated gender in the demographics portion of the survey was not the same as in their Prolific profile, leaving a usable sample of 248 participants (50 % female, M_{age} 44.9).

3.1.3. Procedure

Each participant responded to ten randomly presented franchises, resulting in approximately 30 responses for each franchise. Participants were presented a picture of representative toys featuring characters from each franchise. Participants were asked about their familiarity with each franchise with the question "How familiar are you with [franchise]?" Responses were coded on a five-point scale (1 = "Not familiar at all," 3 = "Moderately familiar," and 5 = "Extremely familiar"). They were then asked their opinion on the target gender for toys featuring the characters from that franchise with the question "Are [franchise] toys for girls, boys, or gender neutral?" Responses were coded on a seven-point scale (1 = "Strictly for Girls," 4 = "Gender Neutral," and 7 = "Strictly for Boys"). Finally, participants answered demographic questions and questions about their children.

3.2. Results

3.2.1. Familiarity

We only included responses from participants indicated they were at least moderately familiar with the franchise. This reduced our total number of responses from 2,480 to 1,228. Further, we dropped seven franchises where fewer than four parents reported being at least moderately familiar with. This brought the total number of observations to 1,217 and the number of franchises included in the gender analysis to 78.

3.2.2. Gender

Twenty-six franchises had an average rating of 3 or lower and were coded as targeted towards girls. Twenty-two franchises had an average rating of 5 or higher and were coded as targeted towards boys. Thirty franchises had an average rating of less than 5 and higher than 3 and were coded as gender-neutral.

4. Study 1: Automated text analysis of gender-casted children's media transcripts

Study 1 employs automated text analysis on the transcripts of a large, diverse sample of children's media. Compared to traditional content analysis, which relies on human coders viewing and coding various video segments, automated text analysis allows analysis of large bodies of data quickly and with greater objectivity in the discovery of insights (Balducci and Marinova, 2018; Berger et al., 2020; Humphreys and Wang, 2018).

In recent years, a number of studies have used automated text analysis to diagnose consumer sentiment, particularly on social media (Greco & Polli, 2020; Settanni & Marengo, 2015). A subset of scholars in this domain has examined the differences in word choices used by women and men on social media (Hu & Kearney, 2021; Park & Woo, 2019; Sun et al., 2020). The underlying assumption in these studies is that words people use can reveal information about their psychology, personality, and social relationships.

A popular application used by scholars to automate text analysis is Linguistic Inquiry and Word Count (LIWC), which counts and organizes text into word categories using a word dictionary of about 6400 words (Cohn et al., 2004; Hu & Kearney, 2021; Kacewicz et al., 2014; Newman et al., 2003; Pennebaker et al., 2015b). Our study applies LIWC to analyze the gendered meanings in the scripts of children's media.

4.1. Method

4.1.1. Data collection

Our text dataset is comprised of 2,333 transcripts which represents 1,041 h of video content and over 5 million words. We sought transcripts of various audio-visual media from the 78 toy and media franchises that were rated in the pre-test. Media types include television and streaming serials, major motion pictures, direct to video movies, and webisodes.

For media that were available on popular streaming services such as Netflix, Disney+, or Amazon Prime, the English closed captioning transcripts were obtained by using Google Chrome Developer Tools to identify and download the closed caption file. For other cases, transcripts were copied from https://www.springfieldspringfield.co.uk, which is a repository for popular movie and TV transcripts. Transcripts were then cleaned to remove closed caption audio descriptions and character cues so that only words spoken by characters and heard by viewers remained.

For television/streaming serials, all episodes of the earliest available season were included in the sample. In most cases, this was 26 episodes; however, some serials had shorter seasons, and in some cases fewer episode transcripts were available. In a few instances, the episode length was about half (11 min) of a standard show for a traditional half-hour television block (22 min). In those cases, up to 52 episodes were included in order to have a similar amount of content in minutes as other serials.

4.1.2. Dependent variables

In order to test our hypotheses, we created our dependent variables by analyzing our dataset using several LIWC dictionaries. We use the LIWC output of the following dictionaries as the dependent variable to test each hypothesis: H_1 Emotional Tone, Positive Emotions, and Negative Emotions; H_2 Anger; H_3 Sadness; H_5 Affiliation; H_6 Power; and H_7 Risk. LIWC output represents the counts of all instances of words from the selected dictionary as a percentage of the total word count for each document. Thus, if there were 67 instances of words from the Anger dictionary in a 10,000-word document, the LIWC output for that document would be 0.67 because 0.67 % of the total words in the document were instances of words from the Anger dictionary. One major exception to this is Emotional Tone (Tone). This measure is a weighted ratio of the Positive and Negative Emotions in a document, where 0.50 represents neutral tone, 1.00 represents completely positive tone, and 0.00

represents completely negative tone.

Additionally, since our text data represents transcripts of media with known runtimes, we also converted the normal LIWC output to hourly rates of word incidence, for further analysis using Poisson regression to predict the hourly rate at which different kinds of words would be heard in an hour of children's media. This was done by taking the LIWC output and multiplying by the total word count for the transcript and then dividing by 100 to get the raw term count per transcript. Next the term count per transcript was divided by the number of minutes, multiplied by 60, and rounded to the nearest integer in order to get the rate per hour.

4.1.3. Predictor variables and transcript coding

In addition to our main predictor variable of interest, gender, we included the four control variables of target age, media format, public funding, and whether the franchise started as a toy line or as program.

Gender was coded as either boy, girl, or gender neutral based on the results from the pre-test. We attempted to balance the dataset by target gender, resulting in relatively similar amounts of content across the three groups of boys (728 transcripts, 387 h), girls (815 transcripts, 327 h), and neutral (790 transcripts 326 h). For analysis, we used "boys" as our base group and created dummy variables for "girls" and "neutral." This was so we could directly compare the coefficient for the "girls" variable against the intercept for "boys" media.

Age was coded at three levels: preschool (ages 0–4), elementary (ages 5–10), and older (ages 11+). Each transcript was coded based on the minimum age deemed appropriate by third party content rating organization Common Sense Media. This resulted in 647 transcripts representing 254 h of content being appropriate for preschoolers, 1,628 transcripts representing 657 h of content being appropriate for elementary age children, and 58 transcripts (mostly movies) representing 129 h of content being appropriate only for older children. For analysis, we used "elementary" as our base group and created dummy variables for "preschool" and "older."

Format was included because we anticipated that there might be important differences in how food is represented in long format versus short format audio-visual media. Format was coded as a dichotomous variable, movie (major motion pictures, direct to video movies, and one-off specials), or serial (television and streaming serials, including webisode serials). Most of the content in our sample came in the form of serials (2,136 transcripts/ 723 h) as opposed to movies (197 transcripts/ 318 h). For analysis we used "serial" as the base group, and "movie" was dummy coded.

While all of the media included in the sample is tied to franchises that include popular children's toys, some franchises were started as toys and others are licensed by toy manufacturers. In order to account for potential differences due to originating as a toy first or being later licensed to create toys, we included a "toy" variable based on the origin of the franchise. Toy was coded as a dichotomous variable, toy (if the franchise was started by a toy company or based on a toy), or other (all other franchises that started with comics, books, movies, cartoons, greeting cards, or video games). The smaller part of our sample originated as toys (726 transcripts/ 290 h) and the larger part had some other origin (1,607 transcripts/ 751 h). For analysis we used "other" as the base group, and "toy" was dummy coded.

Funding source was included because several shows, such as Sesame Street and Daniel Tiger's Neighborhood, are produced using public funds and appear on public television stations but feature popular characters that are licensed to toy manufacturers. Shows were coded as "public" if they appeared on a public television station, such as PBS, and all other shows were coded as "commercial," even if the program airs on a streaming platform without paid advertisements. Our sample was mostly commercially funded (2188 transcripts/981 h), but publicly funded content (145 transcripts/60 h) made up a large enough of our sample to warrant controlling for this factor. For analysis we used "commercial" as the base group, and "public" was dummy coded.

4.2. Data analysis

4.2.1. Model 1: OLS regression analysis

For Model 1, we ran OLS regression, weighted for time in minutes, for each of the dependent variables. The beta coefficient, standard error, and t-value for the intercept and all of the predictor variables are reported in Tables 1–3. We used "boy," "elementary," "serial," "media," and "commercial" as the baseline for each regression. Therefore, the intercept for each regression represents the average episode of a serial that was targeted to elementary aged boys and not based on a toy, nor publicly funded.

4.2.2. Model 2: Poisson regression and predicted word rate

For Model 2, we used Poisson regression to calculate the predicted hourly rate that words from each dictionary would be heard in children's media based on the target gender. We chose to use Poisson regression, weighted for time, since we are analyzing rate data based on word counts. A separate regression was run for each of the dependent variables. Tables 1–3 provide the beta coefficients, standard error, Z-values and exponentiated beta coefficient for the intercept and predictor variables for each of these regressions in table format. Tests of significance are reported for the Z-values. Additionally, the predicted hourly rates of occurrence for words from each dictionary based on target gender are illustrated in Figs. 1 and 2.

4.3. Results

4.3.1. Emotions

The results support H_1 as the overall emotional tone was more positive in girls' media ($\beta = 22.62$, $p < .001$) compared to boys' media. Words related to positive emotions were significantly more prevalent in girls' media ($\beta = 1.16$, $p < .001$) than in boys' media. Words related to negative emotions were significantly more prevalent in boys' media than in girls' media ($\beta = -0.33$, $p < .001$). The results of the regressions on each of the dependent variables used to test H_1were all significant: emotional tone, $F(7, 2325) = 302.00$, $p < .001$, $R^2 = 0.475$, positive emotions, $F(7, 2325) = 164.10$, $p < .001$, $R^2 = 0.329$, and negative emotions, $F(7, 2325) = 184.80$, $p < .001$, $R^2 = 0.356$. The regression output for emotional tone, positive emotions, and negative emotions can be viewed in Table 1 and the predicted hourly word rate for positive emotions by gender can be viewed in Fig. 1.

The results support H_2 as words related to anger were significantly more prevalent in boys' media compared to girls' media ($\beta = -0.33$, $p < .001$). The also results support H_3 as words related to sadness were significantly more prevalent in girls' media ($\beta = 0.04$, $p < .01$) compared to boys' media. We also tested a third discrete negative emotion, anxiety, and words related to anxiety were significantly less prevalent in girls' media ($\beta = 0.03$, $p < .05$) than in boys' media. The results of the regressions on each of the discrete negative emotions were all significant: anger, $F(7, 2325) = 221.20$, $p < .001$, $R^2 = 0.398$., sadness, $F(7, 2325) = 40.15$, $p < .001$, $R^2 = 0.105$, and anxiety, $F(7, 2325) = 6.25$, $p < .001$, $R^2 = 0.016$. The regression output for anger, sadness, and anxiety can be viewed in Table 2 and the predicted hourly word rate by gender can be viewed in Fig. 1.

4.3.2. Drives

The results support H_5 as words related to affiliation were significantly more prevalent in girls' media ($\beta = 0.17$, $p < .01$) compared to boys' media. The results also support H_6 as words related to power were significantly more prevalent in boys' media compared to girls' media ($\beta = -0.61$, $p < .001$). Finally, the results support H_7 as words related to risk were significantly more prevalent in boys' media compared to girls' media ($\beta = -0.18$, $p < .001$). The results of the regressions on each of the reported drives were all significant: affiliation, $F(7, 2325) = 44.76$, $p < .001$, $R^2 = 0.116$., power, $F(7, 2325) = 48.89$, $p < .001$, $R^2 = 0.126$, and risk, $F(7, 2325) = 81.95$, $p < .001$, $R^2 = 0.196$. The regression output

Table 1
Study 1: Regression Output for Emotional Tone.

Model 1: OLS Regression	DV: Emotional Tone			DV: Positive Emotions			DV: Negative Emotions		
	β	SE	t-value	β	SE	t-value	β	SE	t-value
Intercept	47.79	0.75	63.89***	3.60	0.05	71.87***	2.42	0.03	84.43***
Gender									
Girls	22.62	0.94	23.98***	1.16	0.06	18.34***	−0.33	0.04	−9.17***
Neutral	18.39	0.96	19.10***	1.08	0.06	16.80***	−0.19	0.04	−5.02***
Controls									
Preschool	19.16	0.92	20.75***	0.57	0.06	9.24***	−0.93	0.04	−26.26***
Older	−9.01	1.40	−6.42***	−0.27	0.09	−2.90**	0.06	0.05	1.08
Movie	1.34	0.96	1.39	−0.17	0.06	−2.69**	−0.04	0.04	−1.21
Toy	2.59	0.83	3.10**	0.12	0.06	2.11*	−0.05	0.03	−1.45
Public	5.33	1.69	3.45**	0.84	0.11	7.39***	−0.39	0.06	−5.99**

Model 2: Poisson Regression	**DV: Emotional Tone**				**DV: Positive Emotions**				**DV: Negative Emotions**			
	β	SE	z-value	e^{β}	β	SE	z-value	e^{β}	β	SE	z-value	e^{β}
Intercept					2.23	0.003	762.83***	9.26	4.77	0.001	5861.71***	117.35
Gender												
Girls					0.53	0.003	153.85***	1.70	−0.03	0.001	−30.64***	0.97
Neutral					0.45	0.004	122.16***	1.56	−0.00	0.001	0.33	1.00
Controls												
Preschool					0.03	0.003	9.29***	1.03	−0.46	0.001	−389.02***	0.63
Older					−0.70	0.012	−54.82***	0.50	−0.18	0.002	−61.24***	0.90
Movie					−1.60	0.006	−277.82***	0.20	−0.18	0.001	−162.14***	0.83
Toy					0.06	0.003	20.75***	1.06	0.04	0.001	46.11***	1.04
Public					−0.07	0.005	−13.10***	0.93	−0.29	0.002	−122.15**	0.75

Notes: *** = p <.001, ** = p <.01, * = p <.05. Tests of significance were performed on the t-value in Model 1 and z-value in Model 2 for each variable. The intercept represents the following dummy codes: Boys Gender, Elementary Age, Serial Format, Not Toy Origin, and Commercial Funding. Poisson regression could not be run for Emotional Tone, since it is a ratio rather than count variable.

Table 2
Study 1: Regression Output for Discrete Negative Emotions.

Model 1: OLS Regression	**DV: Anger**			**DV: Anxiety**			**DV: Sadness**		
	β	SE	t-value	β	SE	t-value	β	SE	t-value
Intercept	0.83	0.02	54.10***	0.30	0.01	32.27***	0.48	0.01	48.43***
Gender									
Girls	−0.33	0.02	−17.05***	−0.03	0.01	−2.33*	0.04	0.01	3.24**
Neutral	−0.20	0.02	−10.21***	−0.01	0.01	−1.09	−0.01	0.01	−0.72
Controls									
Preschool	−0.39	0.02	−20.74***	−0.04	0.01	−3.57***	−0.16	0.01	−12.66***
Older	0.22	0.03	7.78***	−0.05	0.02	−2.61**	0.02	0.02	1.33
Movie	−0.02	0.02	−0.81	0.02	0.01	1.40	0.01	0.01	0.33
Toy	−0.08	0.02	−4.81***	0.02	0.01	2.26*	0.01	0.01	0.82
Public	−0.12	0.03	−3.47***	−0.03	0.02	−1.65	−0.04	0.02	−1.89

Model 2: Poisson Regression	**DV: Anger**				**DV: Anxiety**				**DV: Sadness**			
	β	SE	z-value	e^{β}	β	SE	z-value	e^{β}	β	SE	z-value	e^{β}
Intercept	3.69	0.001	2507.05***	39.95	2.53	0.002	1068.70***	12.60	3.08	0.002	1686.02***	21.77
Gender												
Girls	−0.53	0.002	−244.47***	0.59	0.05	0.003	16.65***	1.05	0.22	0.002	97.81***	1.24
Neutral	−0.22	0.002	−106.76***	0.80	0.04	0.003	13.45***	1.04	0.06	0.002	26.81***	1.07
Controls												
Preschool	−1.04	0.003	−350.28***	0.35	−0.04	0.003	−12.33***	0.96	−0.29	0.002	−123.27***	0.75
Older	0.13	0.003	43.80***	1.14	−0.31	0.005	−63.37***	0.74	−0.09	0.004	−23.84***	0.92
Movie	−0.18	0.002	−76.38***	0.84	−0.02	0.003	−7.54***	0.98	−0.11	0.002	−49.27***	0.89
Toy	−0.08	0.002	−45.02***	0.92	0.15	0.003	58.44***	1.16	0.09	0.002	44.75***	1.09
Public	−0.46	0.006	−77.03***	0.87	−0.12	0.006	−22.11**	0.88	−0.14	0.005	−29.38***	0.87

Notes: *** = p <.001, ** = p <.01, * = p <.05. Tests of significance were performed on the t-value in Model 1 and z-value in Model 2 for each variable. The intercept represents the following dummy codes: Boys Gender, Elementary Age, Serial Format, Not Toy Origin, and Commercial Funding.

for affiliation, power, and risk can be viewed in Table 3 and the predicted hourly word rate by gender can be viewed in Fig. 2.

5. Study 2: Change in emotional tone by gender across time

Study 2 expands on Study 1 by examining how emotional tone has changed over time in gender casted children's media. This study

Table 3
Study 1: Regression Output for Drives.

Model 1: OLS Regression	DV: Affiliation			DV: Power			DV: Risk		
	β	SE	t-value	β	SE	t-value	β	SE	t-value
Intercept	3.40	0.05	65.34***	3.04	0.04	82.93***	0.90	0.01	64.79***
Gender									
Girls	0.17	0.07	2.95**	−0.61	0.05	−13.22***	−0.18	0.02	−10.26***
Neutral	0.08	0.07	1.23	−0.38	0.05	−8.07***	−0.12	0.02	−6.64***
Controls									
Preschool	0.79	0.06	12.36***	−0.32	0.05	−7.06***	−0.26	0.02	−15.46***
Older	−0.15	0.10	−1.58	−0.13	0.07	−1.90	−0.04	0.03	−1.44
Movie	−0.29	0.07	−4.27***	0.14	0.05	2.95**	−0.01	0.02	−0.65
Toy	0.05	0.06	0.93	0.03	0.04	0.79	−0.03	0.02	−1.79
Public	−0.02	0.12	−0.16	−0.05	0.08	−0.62	−0.12	0.03	−3.81***

Model 2: Poisson Regression	**DV: Affiliation**				**DV: Power**				**DV: Risk**			
	β	SE	z-value	e^{β}	β	SE	z-value	e^{β}	β	SE	z-value	e^{β}
Intercept	5.10	0.001	7808.91***	163.63	4.98	0.001	6993.28***	145.85	3.74	0.001	2754.14***	42.26
Gender												
Girls	0.17	0.001	212.41***	1.18	−0.10	0.001	−111.91***	0.90	−0.13	0.002	−75.21***	0.87
Neutral	0.12	0.001	141.35***	1.12	−0.05	0.001	−48.90***	0.96	−0.06	0.002	−34.67***	0.94
Controls												
Preschool	0.29	0.001	408.60***	1.34	−0.04	0.001	−39.33***	0.96	−0.34	0.002	−175.98***	0.71
Older	−0.19	0.001	−138.38***	0.82	−0.31	0.001	−118.91***	0.84	−0.18	0.003	−65.26***	0.83
Movie	−0.23	0.001	−270.96***	0.80	−0.02	0.001	−101.61***	0.91	−0.14	0.002	−75.64***	0.87
Toy	0.09	0.001	124.16***	1.09	0.15	0.001	100.64***	1.08	0.02	0.002	13.20***	1.02
Public	−0.00	0.001	−0.55	1.00	−0.12	0.002	−6.97***	0.99	−0.24	0.004	−62.72***	0.79

Notes: *** = p <.001, ** = p <.01, * = p <.05. Tests of significance were performed on the t-value in Model 1 and z-value in Model 2 for each variable. The intercept represents the following dummy codes: Boys Gender, Elementary Age, Serial Format, Not Toy Origin, and Commercial Funding.

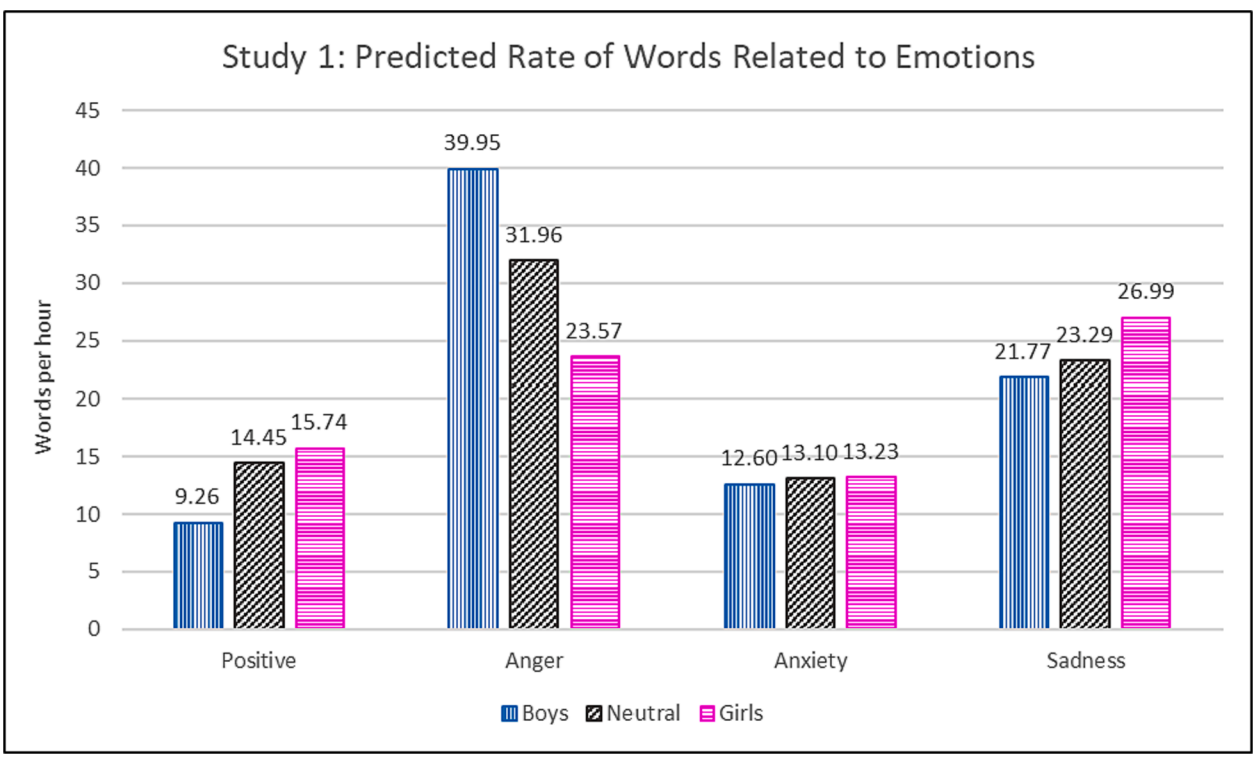

Fig. 1. The predicted hourly rate that a child would hear words related to positive emotions, anger, anxiety, and sadness based on the target gender for toys associated with the media.

compares older and newer series from the same franchises in order to control for differences between franchises. We find support for H_4 that the emotional tone of gender-casted media is moving toward convergence, with boy-directed media has become more emotionally positive over time while girl-directed media has become less emotionally positive over time.

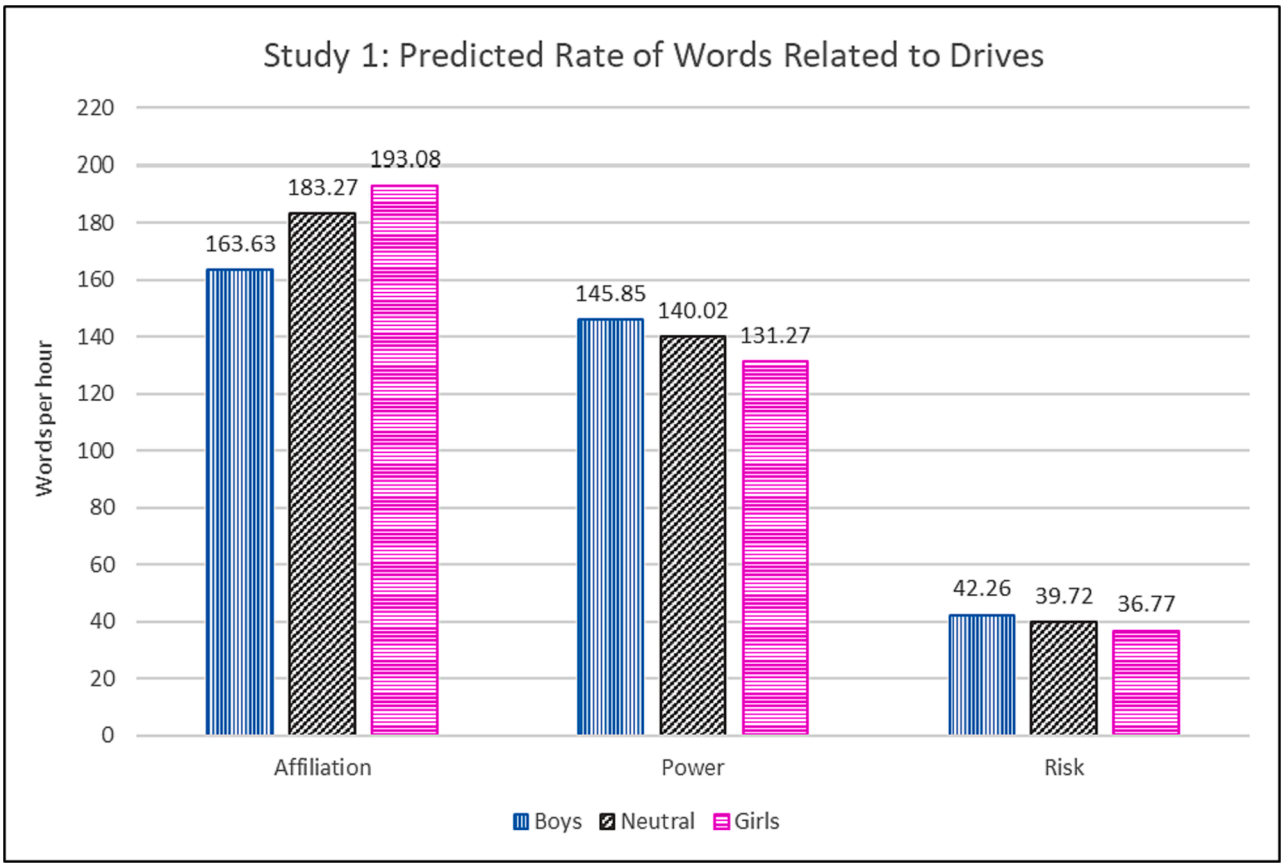

Fig. 2. The predicted hourly rate that a child would hear words related to affiliation, power, and risk based on the target gender for toys associated with the media.

5.1. Method

5.1.1. Data collection

We created a separate text dataset comprised of 734 transcripts which represents 233 h of video content and over 1 million words. In order to control for variation between franchises, we restricted our dataset to franchises that included animated serials that were at least 15 years older than the newest serial for the franchise. We included franchises that had been previously identified in the pre-test and were already represented in Study 1. While several of the transcripts for newer serials were already present in Study 1, all the transcripts from the older serials were collected specifically for this study.

The six franchises for boy-directed media are: Batman, He-Man, Justice League, Spider-Man, Teenage Mutant Ninja Turtles, and Transformers. The seven franchises for girl-directed media are: Disney Princesses, Littlest Pet Shop (1/2 season), My Little Pony, Powerpuff Girls, Sailor Moon, She-Ra, and Strawberry Shortcake (1/2 season). It should be noted that it was far more difficult to identify girl-directed media that met our requirements for inclusion, which is why we included two franchises with only a half season available. The serials from the older era were first released between 1983 and 2003 and the serials from the newer era were released between 2010 and 2021.

As with Study 1, all transcripts were then cleaned to remove closed caption audio descriptions and character cues so that only words spoken by characters and heard by viewers remained. All episodes of the earliest available season were included in the sample. In most cases, this was 26 episodes; however, some serials had shorter seasons, so episodes from subsequent seasons were added to equal 26 full episodes. For two serials, the episode length was about half (11 min) of a standard show for a traditional half-hour television block (22 min). In those cases, 52 episodes were included in order to have a similar amount of content in minutes as other serials. Overall, each franchise is represented by about 18–20 h of transcripts.

5.1.2. Dependent variables

We used the following dependent variables from Study 1: Emotional Tone, Positive Emotions, and Negative Emotions. These were all derived in the same manner as Study 1 using LIWC.

5.1.3. Predictor variables and transcript coding

Gender was coded as either “boy” or “girl” based on the results from the pre-test. Era was coded as either “old” for the serials that aired before the year 2004 or “new” for the serials that aired after the year 2009. This dataset was intentionally balanced by target gender and era, resulting in roughly the same amounts of content across the four groups of old X boy (156 transcripts, 56 h), new X boy (182 transcripts, 60 h), old X girl (195 transcripts, 58 h), and new X girl (201 transcripts, 59 h). There was some variation in overall time due to differences in episode length with older shows tending to have a slightly shorter run times due more advertising being allowed during children’s programming before the Children’s Television Act of 1990.

5.2. Data analysis

For analysis, we used “boy” and “old” as our base group and created dummy variables for “girl” and “new.” We also created an interaction variable “girl X new” to test if the was a difference between the direction that boys’ and girls’ media moved over time. We ran OLS regression, weighted for episode length, for each of the dependent variables. The beta coefficient, standard error, and t-value for the intercept and all the predictor variables are reported in Table 4.

Table 4
Study 2: Regression Output for Emotional Tone.

OLS Regression for Emotional Tone	DV: Emotional Tone			DV: Positive Emotions			DV: Negative Emotions		
	β	SE	t-value	β	SE	t-value	β	SE	t-value
Intercept	43.57	1.49	29.19***	3.59	0.09	41.01***	2.65	0.05	48.77***
Coded Variable									
Girls	29.43	2.09	14.09***	1.67	0.12	13.67***	−0.29	0.08	−3.87***
New	6.73	2.08	3.24**	0.10	0.12	0.82	−0.29	0.08	−3.81***
Interaction									
Girls X New	−11.35	2.93	−3.88***	−0.51	0.17	−2.99**	0.17	0.11	1.64

Notes: *** = p <.001, ** = p <.01, * = p <.05. Tests of significance were performed on the t-value for each variable. The intercept represents the following dummy codes: Boys Gender and Old Era.

5.3. Results

The results of Study 2 indicate that the emotional tone of boys' media and girls' media is moving towards convergence. The results of the regression on emotional tone was significant, $F(3, 730) = 92.24$, $p < .001$, $R^2 = 0.272$. There was a significant interaction between target gender and when the media was produced ($\beta = -11.35$, $p < .001$), such that boys' media has become more positive over time while girls' media has become more negative over time. This interaction is illustrated in Fig. 3.

This change in emotional tone appears to be driven by changes in positive emotions rather than negative emotions. The results of the regression on positive emotions was significant, $F(3, 730) = 94.87$, $p < .001$, $R^2 = 0.278$. The same interaction observed in overall emotional tone was significant in positive emotions ($\beta = -0.51$, $p < .01$), such that boys' media has started to show more positive emotions over time while girls' media has shown fewer positive emotions over time. While the results of the regression on negative emotions was significant, $F(3, 730) = 10.45$, $p < .001$, $R^2 = 0.037$, the same interaction observed in overall emotional tone was not significant for negative emotions ($\beta = 0.17$, $p = .10$). The regression output for emotional tone, positive emotions, and negative emotions can be viewed in Table 4.

6. Discussion

6.1. Theoretical contributions

The primary contribution of this research is that words in gender-casted children's media present distinct emotional tones, but that the overall emotional tone is moving towards convergence. The findings indicate that girl-directed media contain more words that convey a positive emotional tone and an affiliation drive. In contrast, boy-directed media have more words that express negative emotional tones, and power, and risk-focused drives. The results support past research that applied text analysis to words displayed on toy packages (Owen & Padron, 2015). In comparison, Study 1's dataset, which is comprised of 2333 scripts from 78 franchises, represents a more expansive and robust sample than past work that investigated similar phenomenon (*e.g.,* analysis of text from 71 toy packages). Moreover, the language presented in TV shows may be more influential of children's

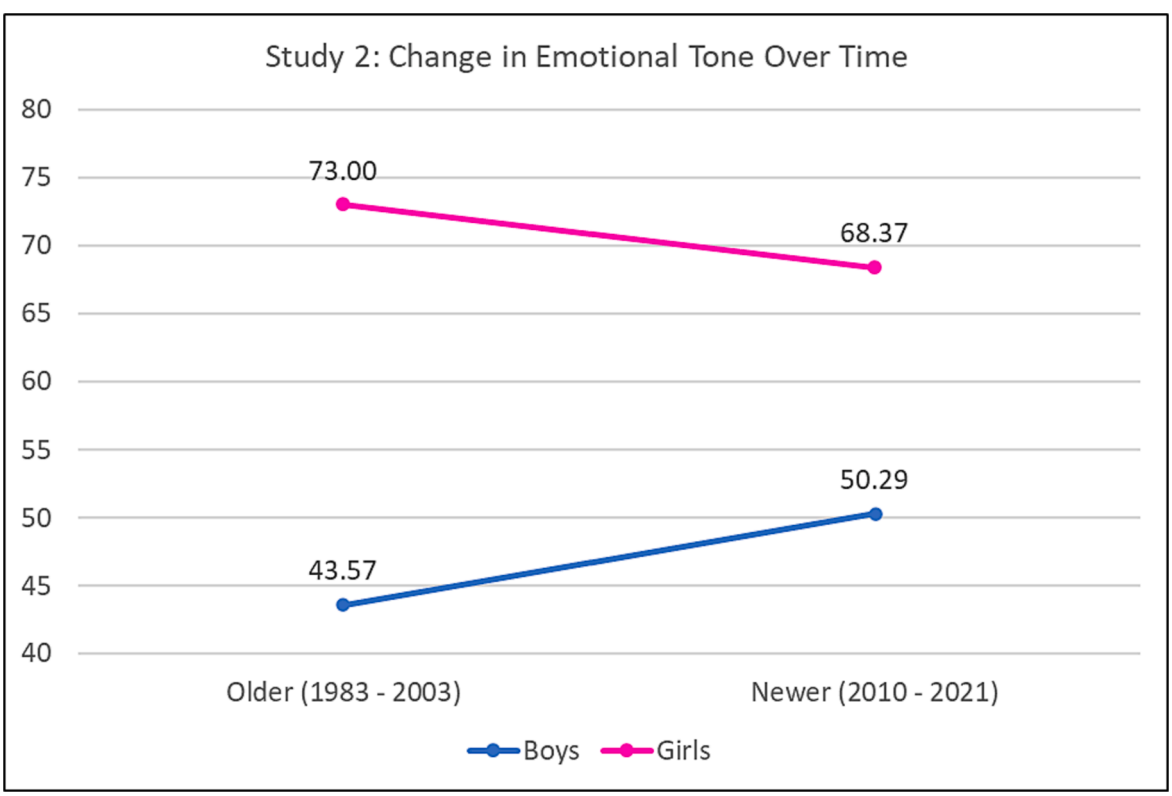

Fig. 3. The predicted overall Emotional Tone for children's animated serials by target gender and era of first release. Emotional Tone was measured using LIWC is reported on a scale of 0 – 100, with 0 being completely negative and 100 being completely positive.

gender comprehension than words presented on packaging (Becker et al., 2016; Giroux, 1999).

Our findings provide the empirical support of the gendered word associations alluded to in past literature. Previous studies' findings are premised on selective content analyses of storylines or characters (Becker et al., 2016; England et al., 2011; Schiele et al., 2020). These studies suggest that children's media reinforce gender stereotypes, where girl-directed media project positive emotional tones (Rajecki et al., 1993) and reflect social relationship themes (Becker et al., 2016; Griffin et al., 2017), and boy-directed media deliver more negative emotional tones with violent, aggressive, and risk themes (Harriger et al., 2021; Rajecki et al., 1993). To our knowledge, this study is the first to implement a systematic text analysis to examine emotional tones and gender in children's media.

Additionally, this study is novel in its demonstration of how emotional tones in gender-casted children's media have changed over time. Boy-directed media produced in the post-2010 era (vs. the 1980 s-2000 s) exhibited more positive emotions. On the other hand, girl-directed media have displayed fewer positive emotions over time. This is not to say that there is more anger or sadness, but rather, there has been fewer positive emotions displayed in girls-directed media in the last two decades. Overall, the results show that boy-directed and girl-directed media are becoming less stereotypical and "balancing out" with respect to emotional tones. Boy cartoons are not just filled with violent, angry men, and girl shows are not just about friendships.

Moreover, the findings contribute to discourses of vulnerability and media. Vulnerability describes a range of negatively valanced emotions, including but not limited to, sadness, anxiety, and fear (Sirvent, 2017). Broadly speaking, society accepts it when women express vulnerability in spoken language, but when men do so, it can lead to shame and embarrassment (Khrystenko, 2022). Moreover, boys learn to suppress vulnerability and be less expressive as they develop (Brody & Hall, 2008). Thus, one may expect girl-directed media to display more words that evoke vulnerability, as it is more socially acceptable to include those emotions in girls' (vs. boys') media. Indeed, the findings indicate girl-directed (vs. boy-directed) media had a higher prevalence of words expressing sadness and affiliation (*e.g.*, vulnerability). Moreover, positive emotion tones in girl-media have decreased over time, which suggests that girl-directed media has evoked *more* vulnerability in recent times.

Finally, the study's methodology contributes to the literature by illustrating how video transcripts can be used with popular text analysis software, such as LIWC, in order to gain insight into young consumers' vast media environments. In addition to running analyses based on percentage of words in a given document, such as in Owen and Padron's (2015) study on the narrative descriptions of gendered toy packaging, this study also considers the hourly rate at which words are likely to be heard by an audience, which is a more appropriate measure for audio-visual media with known run times. Finally, our study's methodology also demonstrates how scholars could perform a comparative, "across-time" analyses of text, which to our knowledge, has not been previously done.

6.2. Managerial implications

The results proffer managerial implications. First, media producers need to be more intentional of what their characters are saying in gender-casted children's media. The results suggest that stereotyped language is still being presented in children's media. Children spend many hours watching television shows and movies, and tacit absorption of stereotyped language and representations influence their understanding of gender (Bussey & Bandura, 1999; Giroux, 1999). It is important to look at the words and emotional tones used in children's media so that media producers can diagnose if there are any problematic gender associations or imbalances in their show scripts.

Second, studying language used in gender-casted children's cartoons can help media marketers develop more inclusive content and diversify gender role representations. Our research indicates that words are correlated with emotional profiles and gender. By avoiding gender stereotypes and promoting positive messaging, children's media can contribute to the progressive development of children and foster a more inclusive society. This is important because children's media often convey educational messages and teach young viewers about various topics (Becker et al., 2016). Despite more attention to gender representations in children's media in recent years, progress is primarily relegated to media leaders like Disney, and stereotyped gender tropes still proliferate in media from smaller producers (Schiele et al., 2020). Media producers could diversify gender roles, by featuring more driven, aggressive female characters and emotionally expressive male characters. For instance, in recent years, girl-directed children's media (*e.g., DC Superhero Girls*, *Moana*, *PowerPuff Girls*) have instilled girl characters with masculine drives such as power and risk to offset stereotyped domesticated female representations (Perea, 2015; Schiele et al., 2020). This is not a call to cancel traditional gender representations, but rather, a call for more balance.

Third, analyzing the language in gender-casted children's media reveals patterns in how different genders are represented and can aid in business' segmentation strategies. Text analysis helps identify the emotional tones, words, and themes that resonate with specific gender groups. For example, certain words, phrases, or emotional tones may appeal more to boys, while others may be more engaging for girls. This understanding can guide businesses in developing products, marketing campaigns, and content that align with the preferences and interests of different gender segments. For instance, if girls respond positively to words related to friendship, affiliation, and positive emotions, a company can incorporate such language into their marketing communications to resonate with the target audience.

Extending the previous thought, semantic analysis of script in children's media can also inform the development of gender-specific products and services that cater to gendered segments. For instance, if the analysis reveals that boys are particularly interested in risk themes, a business could create adventure-based media and a supporting line of toys that specifically target boys. In 2010, Mattel created an award-winning extension of *Hot Wheels* called *Battle Force 5*, an animated series featuring action-adventure, vehicular combat. The cartoon was supported by action figure and vehicle assortments. Similarly, if girls are drawn to friendship, marketers could design products that encourage socialization and group cohesion to appeal to them. The LEGO *Friends* play theme, which predominantly targets girls, is a group of eight characters supported by play sets and an animated series oriented around the challenges of navigating friendships. LEGO's *Friends* fosters "interpersonal skills and grow [children's] emotional awareness through roleplay" (LEGO, 2023).

6.3. Limitations and future research directions

Our study's limitations can be addressed by future research. The findings were based on a pooled text analysis, where researched analyzed a "lump sum" of words aggregated from the scripts in the sample. As we were interested in the *overall* emotional tone of gender-casted media, we did not identify which characters spoke which words. Identifying the gender of characters (*e.g.,* male vs. female character) that spoke the words could possibly magnify the findings. Future work could collate the words spoken by male characters and words spoken by female characters, perform the text analysis on both groups, and examine if there are differences.

An important extension of this work could be to explore whether gender-linked media choices may be, in part, traced back to nature's influence on inherent, biological differences between the sexes. Research suggests that men and women may have different cognitive and sensory processing patterns, with men often being more visually oriented and women having enhanced verbal and empathetic

capabilities (Skuse et al., 1997). These variations can influence media consumption, as men might gravitate towards visually stimulating content like action movies and video games, while women may be more drawn to emotionally engaging narratives, such as romantic films or character-driven TV shows (Choi, 2001). This emotional pattern has been validated in studies examining children's gendered play styles (Hines, 2012). Applying this scholarship to the current study, the nature argument may suggest that boys are pre-disposed to media with language that touches on negative emotional tones and power and risk themes, and girls are naturally inclined to media with language with positive emotional tones and affiliation themes. Future research could empirically validate these preference patterns in children's media. By exploring this direction, scholars can validate if children's media choices are partially attributed to inherent biological and evolutionary factors.

Another direction for future research could be to account for quantity of words and gender associations. For example, scholars could examine whether girl-directed (vs. boy-directed) media will contain more words that convey a positive (vs. negative) emotional tone. Future research can also examine the nonverbal cues of characters in children's media and see how they intersect with verbal cues. Past research suggests that gender may also be communicated via nonverbal cues (Birdwhistell, 1970; Luangrath et al., 2017). A comprehensive understanding of gender representations in children's media may only be arrived with a conjoint examination of the words, nonverbal cues, and content analysis of storylines.

Finally, it is important to note that gender representations, text, and emotional tones may vary depending on cultural, societal, and language factors. In other words, future research could examine cultural aspects of gender, text, and media. Analyzing the language used in gender-casted children's media should be done with sensitivity and a comprehensive understanding of the target audience and their cultural context.

CRediT authorship contribution statement

Eric Setten: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Steven Chen:** Writing – review & editing, Writing – original draft, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

Pre-Tested Franchises by Gender Category

Boys: Avengers, Batman, Ben 10, Beyblade, Blaze and the Monster Machines, Disney Cars, GI Joe, Go Diego Go, He-Man, How to Train Your Dragon, Jurassic Park/ Jurassic World, Justice League, LEGO Ninjago, Spider-Man, Star Wars, Stretch Armstrong, Teenage Mutant Ninja Turtles, Thomas and Friends, ThunderCats, Transformers, Voltron, X-Men.

Girls: Barbie, DC Superhero Girls, Descendants, Disney Fairies, Disney Princesses, Doc McStuffins, Dora the Explorer, Enchantimals, Lalaloopsy, LEGO Friends, Littlest Pet Shop, LOL Surprise, Miraculous, Monster High, My Little Pony, Polly Pocket, Powerpuff Girls, Sailor Moon, She-Ra, Shimmer and Shine, Shopkins, Sofia the First, Spirit, Strawberry Shortcake, Tangled, Winx.

Neutral: Avatar the Last Airbender, Bubble Guppies, Caillou, Care Bears, Daniel Tiger, Despicable Me/ Minions, Dinotrux, Harry Potter, Incredibles, Jake and the Neverland Pirates, LEGO Elves, Octonauts, Paw Patrol, Peppa Pig, PJ Masks, Pokémon, Pound Puppies, Power Rangers, Secret Life of Pets, Sesame Street, Skylanders, Spongebob Squarepants, Super Why, Super Wings, Team Umizoomi, Teen Titans GO, Toy Story, Troll Hunters, Trolls, Wild Kratts.

Excluded Due to Low Familiarity: Beatbugs, Ever After High, Glitter Force, Luna Petunia, Project MC2, Super Monsters, Zak Storm.

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